

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) A liquid crystal display apparatus comprising a liquid crystal device which includes a first substrate (21b) having a first transparent electrode (22b), ~~and a second substrate (21a) having a second transparent electrode (22a), liquid crystal devices (2) holding~~ and a nematic liquid crystal layer (24) which is twist-oriented by an STN-twist angle between the first and second substrates; a first polarization board (4) provided ~~for an~~ outside of the first substrate; a twisted phase difference board (3) provided ~~for the~~ outside of the second substrate and having liquid crystal polymer layers (32a, 32b); and a second polarization board (4) provided ~~for the~~ outside of the twisted phase difference board; ~~characterized in that,~~ wherein:

the direction of the twist angle of molecule orientation of the twisted phase difference board (3) is reverse to the direction of the twisted orientation of the liquid crystal molecule of the liquid crystal devices (2), and the absolute value of the twist angle of the twisted phase difference board is smaller than the absolute value of the twist angle of the liquid crystal devices (2) by 10° to 40°.

2. (Original) A liquid crystal display apparatus as claimed in claim 1, wherein the STN-twist angle lies in the range of 180° to 270°.

3. (Currently amended) A liquid crystal display apparatus as claimed in claim 2, wherein

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

an angle between the liquid crystal molecule-oriented direction of the alignment film (23a) of the second substrate and the molecule-oriented direction of a lower polymer (32b) of the liquid crystal polymer layer lies in the range of 80° to 90°;

an angle between an absorption axis of the first polarization board (4) and the liquid crystal molecule-oriented direction of the alignment film (23b) of the first substrate side lies in the range of 50° to 60°; and

an angle between the absorption axis of the second polarization board (4) and the molecule-oriented direction of an upper polymer (32a) of the liquid crystal polymer lies in the range of 30° to 40°.

4. (Currently amended) A liquid crystal display apparatus as claimed in claim 2, wherein

in the relationship between a retardation $\Delta n d_1$ obtained by product of a double refractive index Δn_1 of the nematic liquid crystal layer (24) and a thickness d_1 of the liquid crystal layer, and a retardation $\Delta n d_2$ obtained by product of the double refractive index Δn_2 of the liquid crystal polymer layer and the thickness d_2 of the liquid crystal polymer layer,

the retardation $\Delta n d_1$ lies in the range of 0.7 to 0.9 μm , and

the difference $\Delta n d_1 - \Delta n d_2$ lies in the range of 0.1 to 0.3 μm .

5. (Currently amended) A liquid crystal display apparatus as claimed in claim 2, wherein

an angle between the liquid crystal molecule-oriented direction of the alignment film (23a) of the second substrate and the molecule-oriented direction of a lower polymer (32b) of the liquid crystal polymer layer lies in the range of 80° to 90°;

an angle between an absorption axis of the first polarization board (4) and the liquid crystal molecule-oriented direction of the alignment film (23b) of the first substrate side lies in the range of 50° to 60°;

an angle between the absorption axis of the second polarization board (4) and the molecule-oriented direction of an upper polymer (32a) of the liquid crystal polymer lies in the range of 30° to 40°; and

in the relationship between a retardation Δn_1 obtained by product of a double refractive index Δn_1 of the nematic liquid crystal layer (24) and a thickness d_1 of the liquid crystal layer, and a retardation Δn_2 obtained by product of the double refractive index Δn_2 of the liquid crystal polymer layer and the thickness d_2 of the liquid crystal polymer layer, the retardation Δn_1 lies in the range of 0.7 to 0.9 μm , and the difference $\Delta n_1 - \Delta n_2$ lies in the range of 0.1 to 0.3 μm .

6. (Canceled)

7. (Currently amended) A liquid crystal display apparatus as claimed in claim 3 or 5, wherein the second polarization board (4) and the twisted phase difference board (3) structures a bonded unit; and the ~~bond~~ bonded unit is structured by superposing upon the second polarization board of the rolled film and the twisted phase difference board of the rolled film, and adhering them for the same roll-out direction, by utilizing the angle between the absorption axis of the second polarization board (4) and the molecule-oriented direction of the upper polymer (32a) of the liquid crystal polymer layer being in the range of 30° to 40°.

8. (Currently amended) A liquid crystal display apparatus as claimed in claim 7, wherein the ~~bonding~~ bonded unit is structured by superposing upon the rolled films each

other and adhering them for the same direction, and by cutting it to a predetermined size.

9. (Original) A liquid crystal display apparatus as claimed in claim 2, wherein the liquid crystal polymer layer of the twisted phase difference board has a temperature compensating characteristic in a predetermined temperature range.

10. (Original) A liquid crystal display apparatus as claimed in claim 9, wherein the liquid crystal polymer layer has a temperature compensating characteristic in which the retardation ($\Delta n d_2$) of the liquid crystal polymer layer is always smaller than the retardation ($\Delta n d_1$) of the nematic liquid crystal layer in a predetermined temperature range.

11. (Original) A liquid crystal display apparatus as claimed in claim 10, wherein the predetermined temperature range lies in the range of 20° to 80°.

12. (Currently amended) A liquid crystal display apparatus comprising a first substrate (21b) having a first transparent electrode (22b) and a second substrate (21a) having a second transparent electrode (22a), a liquid crystal device ~~devices~~ (2) holding a nematic liquid crystal layer (24) which is twist-oriented by an STN-twist angle in the range of 180° to 270° between the first and second substrates; a first polarization board (4) provided for an outside of the first substrate; a twisted phase difference board (3) provided for the outside of the second substrate and having liquid crystal polymer layers (32a, 32b); and a second polarization board (4) provided for the outside of the twisted phase difference board; ~~characterized in that,~~ wherein:

a) the direction of the twist angle of molecule orientation of the twisted phase difference board (3) is reverse to the direction of the twisted orientation of the liquid

crystal molecule of the liquid crystal device ~~devices (2)~~, and the twist angle of the twisted phase difference board is smaller than the twist angle of the liquid crystal device ~~devices (2)~~ by 10° to 40° ;

b) an angle between the liquid crystal molecule-oriented direction of the alignment film (23a) of the second substrate and the molecule-oriented direction of a lower polymer (32b) of the liquid crystal polymer layer lies in the range of 80° to 90° ;

c) an angle between an absorption axis of the first polarization board (4) and the liquid crystal molecule-oriented direction of the alignment film (23b) of the first substrate side lies in the range of 50° to 60° ;

d) an angle between the absorption axis of the second polarization board (4) and the molecule-oriented direction of an upper polymer (32a) of the liquid crystal polymer lies in the range of 30° to 40° ;

e) in the relationship between a retardation $\Delta n d_1$ obtained by product of a double refractive index Δn_1 of the nematic liquid crystal layer (24) and a thickness d_1 of the liquid crystal layer, and a retardation $\Delta n d_2$ obtained by product of the double refractive index Δn_2 of the liquid crystal polymer layer and the thickness d_2 of the liquid crystal polymer layer, $\Delta n d_1$ lies in the range of 0.7 to 0.9 μm , and the difference $\Delta n d_1 - \Delta n d_2$ lies in the range of 0.1 to 0.3 μm ;

f) the second polarization board (4) and the twisted phase difference board (3) structure a bonded unit; and the ~~bond~~ bonded unit is structured by superposing upon the second polarization board of the rolled film and the twisted phase difference board of the rolled film, adhering them for the same roll-out direction, and cutting it to a predetermined size; and

g) the liquid crystal polymer layer has a temperature compensating characteristic in which the retardation ($\Delta n d_2$) of the liquid crystal polymer layer is always smaller than the retardation ($\Delta n d_1$) of the nematic liquid crystal layer in a predetermined temperature range.

13. (Currently amended) A method for manufacturing a liquid crystal display apparatus comprising a first substrate (21b) having a first transparent electrode (22b) and a second substrate (21a) having a second transparent electrode (22a), a liquid crystal device ~~devices~~ (2) holding a nematic liquid crystal layer (24) which is twist-oriented by an STN-twist angle in the range of 180° to 270° between the first and second substrates; a first polarization board (1) provided ~~for an~~ outside of the first substrate; a twisted phase difference board (3) provided ~~for the~~ outside of the second substrate and having liquid crystal polymer layers (32a, 32b); and a second polarization board (4) provided for the outside of the twisted phase difference board; wherein an angle between an absorption axis of the second polarization board (4) and a molecule-oriented direction of an upper polymer (32a) of the liquid crystal polymer layer lies in the range of 30° to 40°; ~~characterized in that,~~ wherein:

- a) the second polarization board (4) is structured by rolled film;
- b) the twisted phase difference board is structured by ~~the~~ rolled film;
- c) the roll-out direction of the rolled film of the second polarization board and the roll-out direction of the rolled film of the twisted phase difference board are arranged in the same direction by utilizing an angle ~~being~~ in the range of 30° to 40°;

d) the rolled film of the second polarization board and the rolled film of the twisted phase difference board are superposed upon each other and adhered ~~them~~ in the roll-out direction; and

e) a bonding unit is made by cutting the rolled film in a predetermined size after adhesion and bonding the second polarization board and the twisted phase difference board.

14. (Currently amended) A liquid crystal display apparatus as claimed in claim 2, wherein a ~~preferential~~ viewing angle of the liquid crystal apparatus by an observer can be at any one of the following positions, based upon the convention of a clock-face: ~~two-thirty~~ one-thirty, four-thirty, seven-thirty, or ten-thirty o'clock.